

WHAT IS CLAIMED:

1. An apparatus for converting an organic liquor into a mixture of hydrocarbons, and carbon solids, comprising:
 - a heating vessel configured to receive and heat the organic liquor to produce a mixture of liquid and vaporized oil;
 - a reactor configured to receive and convert the mixture of liquid and vaporized oil into carbon solids and a mixture of hydrocarbon vapors and gases;
 - a first cooler for accepting the carbon solids; and
 - a second cooler for accepting the mixture of hydrocarbon vapors and gases.
2. The apparatus of claim 1 wherein said reactor is an auger.
3. The apparatus of claim 2 wherein said auger is heated to a temperature between about 400 °C and about 600 °C.
4. The apparatus of claim 1 wherein said heater comprises a vessel with a number of tubes inside the vessel that promote efficient heat exchange.
5. The apparatus of claim 1 wherein said first cooler is an auger.
6. The apparatus of claim 1 additionally comprising a storage system for accepting the carbon solids from the first cooler.
7. The apparatus of claim 1 additionally comprising one or more preheaters for heating the organic liquor prior to transferring the organic liquor to the heater.
8. The apparatus of claim 1 additionally comprising an air lock between the reactor and the first cooler.
9. The apparatus of claim 6 additionally comprising an air lock between the first cooler and the storage system.
10. The apparatus of claim 1 wherein the heater is additionally configured to accept steam in addition to the mixture of liquid and vaporized oil.

11. The apparatus of claim 1 wherein the second cooler additionally comprises a carbon particulate separator.
12. An apparatus comprising:
 - a heated vessel having an inlet and an outlet;
 - a first, heated auger having an inlet and an outlet, said inlet and outlet being configured and dimensioned to permit higher pressure to be applied in said first auger, said first auger inlet communicating with the vessel outlet;
 - a fluid-solid separator communicating with the first auger outlet, said separator having a first outlet for liquids and gases and a second outlet for solids; and
 - a second auger a second auger communicating with said solids, said second auger providing for cooling of said solids.
13. The apparatus of claim 12, further comprising a condenser communicating with said separator first outlet.
14. A process for converting an organic liquor into a mixture of hydrocarbons and carbon solids, comprising:
 - heating the organic liquor to produce a mixture of liquid and vaporized oil;
 - converting the mixture of liquid and vaporized oil into carbon solids and a mixture of hydrocarbons and gases; and
 - separating the carbon solids from the mixture of hydrocarbons and gases.
15. The process of claim 14 additionally comprising, after the separating, cooling the carbon solids.
16. The process of claim 14 wherein the heating is carried out in a first stage and a second stage.
17. The process of claim 14 wherein the organic liquor is mixed with steam in the first stage.
18. The process of claim 14 wherein the converting is carried out in an auger.
19. The process of claim 14 additionally comprising, prior to heating, mixing the organic liquor with steam.

20. The process of claim 14 additionally comprising, after the cooling, storing the carbon solids.